

# SEQUENCE LISTING

<110> INOUE, Makoto  
HASEGAWA, Mamoru  
HIRONAKA, Takashi

<120> Paramyxoviral Vectors Encoding  
Antibodies and Uses Thereof

<130> 50026/049001

<150> PCT/JP03/07005

<151> 2003-06-03

<150> 2002-161964

<151> 2002-06-03

<160> 63

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 10

<212> DNA

<213> Sendai virus

<400> 1

ctttcaccct

10

<210> 2

<211> 15

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<213> Sendai virus

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ttttttcttac tacgg

15

<210> 3

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<213> Artificial Sequence

<220>

<223> a spacer sequence

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cggccgcaga tcttcacg

18

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<400> 4

atgcatgccg gcagatga 18

<210> 5  
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<220>  
<223> a primer for amplifying Sendai virus genome  
fragment

<400> 5  
gttgagtact gcaagagc 18

<210> 6  
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fragment

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fragment

<400> 8  
tgggtgaatg agagaatcag c 21

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IN-1

<221> CDS  
 <222> (18)...(749)

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<400> 9

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                  1             5             10

ctg gct ggt ttc gct acc gta gcg cag gcc gaa gtt aaa ctg cat gag      98
Leu Ala Gly Phe Ala Thr Val Ala Gln Ala Glu Val Lys Leu His Glu
                  15             20             25

tca ggg cct ggg ctg gta agg cct ggg act tca gtg aag ata tcc tgc     146
Ser Gly Pro Gly Leu Val Arg Pro Gly Thr Ser Val Lys Ile Ser Cys
                  30             35             40

aag gct tct ggc tac acc ttc act aac tac tgg cta ggt tgg gta aag     194
Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr Trp Leu Gly Trp Val Lys
                  45             50             55

cag agg cct gga cat gga ctt gag tgg att gga gat att tac cct gga     242
Gln Arg Pro Gly His Gly Leu Glu Trp Ile Gly Asp Ile Tyr Pro Gly
                  60             65             70             75

ggg ggt tat act aac tac aat gag aag ttc aag ggc aag gcc aca ctg     290
Gly Gly Tyr Thr Asn Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr Leu
                  80             85             90

act gca gac aca tcc tcc agc act gcc tac atg cag ctc agt agc ctg     338
Thr Ala Asp Thr Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu
                  95             100             105

aca tct gag gac tct gct gtc tat ttc tgt gca aga ttt tac tac ggt     386
Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala Arg Phe Tyr Tyr Gly
                  110             115             120

agt agc tac tgg tac ttc gat gtc tgg ggc caa ggc acc acg gtc acc     434
Ser Ser Tyr Trp Tyr Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr
                  125             130             135

gtc tcc tca gca aag acc act cct ccg tct gtt tac cct ctg gct cct     482
Val Ser Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro
                  140             145             150             155

ggg tct gcg gct cag act aac tct atg gtg act ctg gga tgc ctg gtc     530
Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu Val
                  160             165             170

aag ggc tat ttc cct gag cca gtg aca gtg acc tgg aac tct gga tcc     578
Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly Ser
                  175             180             185

ctg tcc agc ggt gtg cac acc ttc cca gct gtc ctg caa tct gac ctc     626
Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp Leu
                  190             195             200
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tac act ctg agc agc tca gtg act gtc ccc tcc agc acc tgg ccc agc	674
Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser	
205 210 215	
gag acc gtc acc tgc aac gtt gcc cac ccg gct tct agc acc aaa gtt	722
Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys Val	
220 225 230 235	
gac aag aaa atc gta ccg cgc gac tgc taaccgtagt aagaaaaact	769
Asp Lys Lys Ile Val Pro Arg Asp Cys	
240	
taggggtgaaa gttcatcgcg gccgtacggc c atg aaa caa agc act att gca	821
Met Lys Gln Ser Thr Ile Ala	
245 250	
ctg gca ctc tta ccg tta ctg ttt acc cct gtg aca aaa gcc gac atc	869
Leu Ala Leu Leu Pro Leu Leu Phe Thr Pro Val Thr Lys Ala Asp Ile	
255 260 265	
gag ctc acc cag tct cca gca atc atg gct gca tct gtg gga gaa act	917
Glu Leu Thr Gln Ser Pro Ala Ile Met Ala Ala Ser Val Gly Glu Thr	
270 275 280	
gtc acc atc aca tgt gga gca agt gag aat att tac ggt gct tta aat	965
Val Thr Ile Thr Cys Gly Ala Ser Glu Asn Ile Tyr Gly Ala Leu Asn	
285 290 295	
tgg tat cag cgg aaa cag gga aaa tct cct cag ctc ctg atc tat ggt	1013
Trp Tyr Gln Arg Lys Gln Gly Lys Ser Pro Gln Leu Leu Ile Tyr Gly	
300 305 310 315	
gca acc aac ttg gca gat ggc atg tca tcc agg ttc agt ggc agt gga	1061
Ala Thr Asn Leu Ala Asp Gly Met Ser Ser Arg Phe Ser Gly Ser Gly	
320 325 330	
tct ggt aga cag tat tct ctc aag atc agt agc ctg cat cct gac gat	1109
Ser Gly Arg Gln Tyr Ser Leu Lys Ile Ser Ser Leu His Pro Asp Asp	
335 340 345	
gtt gca acg tat tac tgt caa aat gtg tta agt act cct cgg acg ttc	1157
Val Ala Thr Tyr Tyr Cys Gln Asn Val Leu Ser Thr Pro Arg Thr Phe	
350 355 360	
gga gct ggg acc aag ctc gag ctg aag cgc gct gat gct gca ccg act	1205
Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Ala Asp Ala Ala Pro Thr	
365 370 375	
gta tcc atc ttc cca cca tcc agt gag cag tta aca tct gga ggt gcc	1253
Val Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala	
380 385 390 395	
tca gtc gtg tgc ttc ttg aac aac ttc tac ccc aaa gac atc aat gtc	1301
Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val	
400 405 410	
aag tgg aag att gat ggc agt gaa cga caa aat ggc gtc ctg aac agt	1349

Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn Ser  
 415 420 425  
 tgg act gat cag gac agc aaa gac agc acc tac agc atg agc agc acc 1397  
 Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr  
 430 435 440  
 ctc acg ttg acc aag gac gag tat gaa cga cat aac agc tat acc tgt 1445  
 Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys  
 445 450 455  
 gag gcc act cac aag aca tca act tca ccc att gtc aag agc ttc aac 1493  
 Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe Asn  
 460 465 470 475  
 agg aat gag tgt tagtccgtag taagaaaaac ttaggggtgaa agttcatgcg 1545  
 Arg Asn Glu Cys  
  
 gccgc 1550  
  
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 <211> 244  
 <212> PRT  
 <213> Artificial Sequence  
  
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 <223> an immunoglobulin IN-1 heavy chain  
  
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 1 5 10 15  
 Thr Val Ala Gln Ala Glu Val Lys Leu His Glu Ser Gly Pro Gly Leu  
 20 25 30  
 Val Arg Pro Gly Thr Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr  
 35 40 45  
 Thr Phe Thr Asn Tyr Trp Leu Gly Trp Val Lys Gln Arg Pro Gly His  
 50 55 60  
 Gly Leu Glu Trp Ile Gly Asp Ile Tyr Pro Gly Gly Tyr Thr Asn  
 65 70 75 80  
 Tyr Asn Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Thr Ser  
 85 90 95  
 Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser  
 100 105 110  
 Ala Val Tyr Phe Cys Ala Arg Phe Tyr Tyr Gly Ser Ser Tyr Trp Tyr  
 115 120 125  
 Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Lys  
 130 135 140  
 Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln  
 145 150 155 160  
 Thr Asn Ser Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr Phe Pro  
 165 170 175  
 Glu Pro Val Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser Gly Val  
 180 185 190  
 His Thr Phe Pro Ala Val Leu Gln Ser Asp Leu Tyr Thr Leu Ser Ser  
 195 200 205  
 Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val Thr Cys  
 210 215 220

Asn Val Ala His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val  
 225 230 235 240  
 Pro Arg Asp Cys

<210> 11  
 <211> 235  
 <212> PRT  
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<220>  
 <223> an immunoglobulin IN-1 light chain

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 1 5 10 15  
 Pro Val Thr Lys Ala Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met  
 20 25 30  
 Ala Ala Ser Val Gly Glu Thr Val Thr Ile Thr Cys Gly Ala Ser Glu  
 35 40 45  
 Asn Ile Tyr Gly Ala Leu Asn Trp Tyr Gln Arg Lys Gln Gly Lys Ser  
 50 55 60  
 Pro Gln Leu Leu Ile Tyr Gly Ala Thr Asn Leu Ala Asp Gly Met Ser  
 65 70 75 80  
 Ser Arg Phe Ser Gly Ser Gly Ser Gly Arg Gln Tyr Ser Leu Lys Ile  
 85 90 95  
 Ser Ser Leu His Pro Asp Asp Val Ala Thr Tyr Tyr Cys Gln Asn Val  
 100 105 110  
 Leu Ser Thr Pro Arg Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys  
 115 120 125  
 Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu  
 130 135 140  
 Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe  
 145 150 155 160  
 Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg  
 165 170 175  
 Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser  
 180 185 190  
 Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu  
 195 200 205  
 Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser  
 210 215 220  
 Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys  
 225 230 235

<210> 12  
 <211> 68  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 12  
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ggctggtt 68

<210> 13

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> a synthetic oligonucleotide for constructing a Fab  
gene fragment

<400> 13

tgcagtggca ctggctggtt tcgctaccgt agcgcaggcc gaagttaaac tgcattgagtc 60  
agggcctggg 70

<210> 14

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> a synthetic oligonucleotide for constructing a Fab  
gene fragment

<400> 14

tgcattgagtc agggcctggg ctggtaaggc ctgggacttc agtgaagata tcttgcaagg 60  
cttctggcta 70

<210> 15

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> a synthetic oligonucleotide for constructing a Fab  
gene fragment

<400> 15

actgcagaca catctccag cactgcctac atgcagctca gtagcctgac atctgaggac 60

<210> 16

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> a synthetic oligonucleotide for constructing a Fab  
gene fragment

<400> 16

gtagcctgac atctgaggac tctgctgtct atttctgtgc aagattttac tacggtagta 60

<210> 17

<211> 60

<212> DNA

<213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 17  
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<210> 18  
 <211> 60  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 18  
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<210> 19  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 19  
 cctgcaatct gacctctaca ctctgagcag ctcaagtact gtcccctcca gcacctggcc 60  
 cagcgagacc 70

<210> 20  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
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<400> 20  
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 ttgacaagaa 70

<210> 21  
 <211> 70  
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<220>  
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<400> 21  
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accatcacat 70

<210> 22  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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<400> 22  
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 tcagcggaaa 70

<210> 23  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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<400> 23  
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 acttggcaga 70

<210> 24  
 <211> 72  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 24  
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 tgagcagtta ac 72

<210> 25  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
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<400> 25  
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 taccocaaag 70

<210> 26  
 <211> 70  
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 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 26  
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 aaatggcgtc 70

<210> 27  
 <211> 79  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 27  
 caagagcttc aacaggaatg agtgtagtc cgtagtaaga aaaacttagg gtgaaagtcc 60  
 atgcggccgc aagcttggg 79

<210> 28  
 <211> 80  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 28  
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 caagagcttc aacaggaatg 80

<210> 29  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 29  
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 aacagctata 70

<210> 30  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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<400> 30  
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acagcatgag 70

<210> 31  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 31  
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 gaagcttggg 70

<210> 32  
 <211> 80  
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<220>  
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 gene fragment

<400> 32  
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<210> 33  
 <211> 70  
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 <213> Artificial Sequence

<220>  
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 gene fragment

<400> 33  
 ggtgcaacca acttggcaga tggcatgtca tcgaggttca gtggcagtgg atctggtaga 60  
 cagtattctc 70

<210> 34  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 34  
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 agctcaccca 70

<210> 35  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 35  
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 actggcactc 70

<210> 36  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 36  
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 agggtgaaag 70

<210> 37  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 37  
 tgactctggg atgcctgggc aagggtctatt tccctgagcc agtgacagtg acctggaact 60  
 ctggatcccg 70

<210> 38  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 38  
 gtctgtttac cctctgggtc ctgggtctgc ggctcagact aactctatgg tgactctggg 60  
 atgcctgggc 70

<210> 39  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 39  
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cctctggctc 70

<210> 40  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 40  
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 catcctccag 70

<210> 41  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 41  
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 tactaactac 70

<210> 42  
 <211> 70  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a synthetic oligonucleotide for constructing a Fab  
 gene fragment

<400> 42  
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 cctggacatg 70

<210> 43  
 <211> 753  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> an anti-CD28 ScFv antibody gene (SYN205-13)

<400> 43  
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 gccaccatct cctgcagagc cagtgcagagt gttgaatatt atgtcacaag tttaatgcag 120  
 tggtagcagc agaagccagg acagccaccc aaactcctca tctttgctgc atccaacgta 180  
 gaatctgggg tcctgccag gtttagtggc agtgggtctg ggacaaactt cagcctcaac 240  
 atccatcctg tggacgagga tgatgttgca atgtatttct gtcagcaaag taggaagggt 300  
 ccttacacgt tcggaggggg gaccaagctg gaaataaaac ggggagggcg cggttctggc 360  
 ggtggcggat caggtggcgg aggctcgag gtgaaactgc agcagtctgg acctggcctg 420  
 gtgacgccct cacagagcct gtccatcact tgtactgtct ctgggttttc attaacgcac 480

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tatggtgttc actgggttcg ccagtctcca ggacagggac tggagtggct gggagtaata 540
tggtgtggtg gaggcacgaa ttataattcg gctctcatgt ccagaaagag catcagcaaa 600
gacaactcca agagccaagt tttcttaaaa atgaacagtc tgcaagctga tgacacagcc 660
gtgtattact gtgccagaga taagggtatc tcctattact attctatgga ctactggggc 720
caagggaacca cggtcactgt ctctctgtct aga 753

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<210> 44  
 <211> 247  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> an anti-CD28 ScFv antibody gene (SYN205-13)

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<400> 44
Asp Ile Glu Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
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Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser Glu Ser Val Glu Tyr Tyr
          20           25           30
Val Thr Ser Leu Met Gln Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
          35           40           45
Lys Leu Leu Ile Phe Ala Ala Ser Asn Val Glu Ser Gly Val Pro Ala
          50           55           60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asn Phe Ser Leu Asn Ile His
65           70           75           80
Pro Val Asp Glu Asp Asp Val Ala Met Tyr Phe Cys Gln Gln Ser Arg
          85           90           95
Lys Val Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
          100          105          110
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln
          115          120          125
Val Lys Leu Gln Gln Ser Gly Pro Gly Leu Val Thr Pro Ser Gln Ser
          130          135          140
Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Asp Tyr Gly
145          150          155          160
Val His Trp Val Arg Gln Ser Pro Gly Gln Gly Leu Glu Trp Leu Gly
          165          170          175
Val Ile Trp Ala Gly Gly Gly Thr Asn Tyr Asn Ser Ala Leu Met Ser
          180          185          190
Arg Lys Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Leu Lys
          195          200          205
Met Asn Ser Leu Gln Ala Asp Asp Thr Ala Val Tyr Tyr Cys Ala Arg
          210          215          220
Asp Lys Gly Tyr Ser Tyr Tyr Tyr Ser Met Asp Tyr Trp Gly Gln Gly
225          230          235          240
Thr Thr Val Thr Val Ser Ser
          245

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<210> 45  
 <211> 131  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> a NotI fragment containing an EIS sequence in  
 pGEM-4Zcst

<400> 45  
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cctcagtcac aatgtccaga ggatctagac cgtagtaaga aaaacttagg gtgaaagttc 120  
atcgcggccg c 131

<210> 46  
<211> 22  
<212> PRT  
<213> Mus musculus

<400> 46  
Met Asp Phe Gln Val Gln Ile Phe Ser Phe Leu Leu Ile Ser Ala Ser  
1 5 10 15  
Val Ile Met Ser Arg Gly  
20

<210> 47  
<211> 70  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> a synthetic oligonucleotide for constructing an  
anti-CD28cst gene fragment

<400> 47  
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gccaccatct 70

<210> 48  
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<220>  
<223> a synthetic oligonucleotide for constructing an  
anti-CD28cst gene fragment

<400> 48  
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tttaatgcag 70

<210> 49  
<211> 70  
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<220>  
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anti-CD28cst gene fragment

<400> 49  
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tccttgctgc 70

<210> 50  
<211> 70

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         anti-CD28cst gene fragment  
  
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 ggtggcggat 70  
  
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         anti-CD28cst gene fragment  
  
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 acctggcctg 70  
  
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 ctgggttttc 70  
  
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         anti-CD28cst gene fragment  
  
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 gtgtattact 70  
  
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<400> 54  
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ctactggggc 70

<210> 55  
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anti-CD28cst gene fragment

<400> 55  
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<210> 56  
<211> 70  
<212> DNA  
<213> Artificial Sequence

<220>  
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anti-CD28cst gene fragment

<400> 56  
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ttcgtgcctc 70

<210> 57  
<211> 70  
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<220>  
<223> a synthetic oligonucleotide for constructing an  
anti-CD28cst gene fragment

<400> 57  
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<210> 58  
<211> 70  
<212> DNA  
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<220>  
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anti-CD28cst gene fragment

<400> 58  
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agacagtaca 70

<210> 59  
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<223> a synthetic oligonucleotide for constructing an  
anti-CD28cst gene fragment

<400> 59

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<210> 60

<211> 70

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<210> 62

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<213> Artificial Sequence

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<223> a synthetic primer F6

<400> 62

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<210> 63

<211> 23

<212> DNA

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<223> a synthetic primer F6

<400> 63

gataacagca cctcctcccg act 23